

EGS I&T Technical Analysis Memorandum (Incremental)

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From: EGS I&T Team

Subject: Test Report for Test Version DAAC to SCF tests

1. Summary & Discussion

The purpose of this TAM is to present the final results of the LaRC DAAC to CERES SCF Interface Test (EXT02) and the EDC DAAC to ASTER SCF (EXT08) interface tests. Both of these test were successful with no problems encountered. The tests were performed using the EOS Ground System (EGS) Test Version Integration and Test Procedures (Baseline), dated February 22, 1996. A copy of this document is located in the Library section of the I&T Internet WWW page a URL <http://fairmont.ivv.nasa.gov/it>. The MSFC DAAC to LIS SCF Interface Test was originally planned to be performed, however, per direction from the SMO, no MSFC interface I&T testing was performed. Final allocation of LIS data processing is pending.

The requirements verified by these tests are shown in Attachment A (Requirements Verification Matrix). Nineteen requirements allocated to the I&T effort were verified by these tests.

Testing was performed using ECS Ir1 software Version 1.02. No Discrepancy Reports were generated during the testing.

2. Context

EGS I&T testing was performed to verify that interfaces between DAACs and SCFs had been established in order to allow the transferring of products and algorithms between the DAACs and the SCFs. More specifically, the objectives of performing test EXT02 and EXT08 were to verify that the ECS COTS implementation and NSI infra-structure for electronic mail, non-secure file transfer, and Internet access had been correctly installed and configured.

3. Discussion

The discussion is divided into two parts - one for each test performed.

3.1 EXT02 - LaRC DAAC to CERES SCF Interface Test

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On March 11, 1996, a Dry Run of EXT02 test was performed at the LaRC DAAC using the Fairmont IVV server to simulate the CERES SCF as accounts at the CERES SCF had not been set up for the M&O personnel at that time.

On March 12, the CERES accounts for the M&O personnel at LaRC were established and the EXT02 interface test was conducted using the ECS ait1sunlarc server. The test involved invoking the ftp application at the LaRC DAAC and transferring single and multiple files from the CERES SCF server using get and mget commands. Ftp put and mput commands were used to transfer files from the LaRC DAAC to the SCF. Upon completion of these file transfers, the file sizes and time stamps of all transferred files were verified.

Then the ability of the DAAC to access the Internet was verified by visiting the CERES SCF web site.

The final part of the test was to verify the error handling capability of the ECS software. Using the Fairmont WV IVV server, the DAAC initiated an ftp from Fairmont where the system administrator (SA) killed the ftp process in the middle of the transfer. Proper error messages were displayed at the DAAC with no impact to the system. Next the Fairmont SA disabled remote access to his site and the DAAC tried to connect. The proper "connection refused" message was received at the DAAC with no impact to the system.

3.2 EXT08 - EDC DAAC to IVV Fairmont Computer

On February 26, 1996, a Dry Run of EXT08 test was performed at the EDC DAAC. Testing was not performed with the ASTER SCF, instead the Fairmont WV IVV server was used to simulate the SCF. The ASTER SCF performed their own tests of the interface and supplied results to the EGS I&T Test Conductor. They were able to test all aspects of the interface except for the error handling portion. The ASTER test engineer did not have the system privileges necessary to force an ftp error by killing the ftp process. All results were nominal.

On February 27th, the formal test was performed on the sprlsgiedc server. The test involved invoking the ftp application at the EDC DAAC and transferring single and multiple files from the IVV server using get and mget commands. Ftp put and mput commands were used to transfer files from the LaRC DAAC to the IVV server. Upon completion of these file transfers, the file sizes and time stamps of all transferred files were verified.

Then the ability of the DAAC to access the Internet was verified by visiting the ASTER SCF web site.

The final part of the test was to verify the error handling capability of the ECS software. Again using the Fairmont IVV server, the DAAC initiated an ftp from Fairmont. The SA killed the ftp process in the middle of the transfer. Proper error messages were displayed at the DAAC with no impact to the system. Next the Fairmont SA disabled remote access to his site and the DAAC tried to connect. The proper "connection refused" message was received at the DAAC with no impact to the system.

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4. Recommendation

The LaRC DAAC to CERES SCF and EDC DAAC to ASTER SCF interfaces are determined to be verified, and recommended for EGS Test Version general use.

5. Recommended Additional Distribution

ESDIS / Ellen Herring
ESDIS / Steve Kempler
ESDIS / Beth Pumphrey
ESDIS / David Han
HITS / Nitin Vazarkar
HITS / Bob Clinard
LaRC DAAC / Lucy Lee
LaRC DAAC / Chris Harris
EDC DAAC / John Daucsavage
EDC DAAC / Tom Kalvelage
GSFC DAAC / Chris Lynnes

6. Attachments

A: Requirement Verification Matrix

Originators:

Approved:

George Bazzell
EGS I&T Test Conductor

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EGS I&T Test Director

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Attachment A - Requirement Verification Matrix

The following requirements have been verified by the tests performed in EXT02 and EXT08:

Test Method: I - Inspection, A - Analysis, D-Demonstration, T-Test

Verification Matrix							
Paragraph ID	Requirement Text	Clarification	Test Case ID	Test Method			
				I	A	D	T
DADS0190	Each DADS shall receive from the SCF, at a minimum, the following: g. Algorithms	IR-1: This requirement is supported as follows: IR-1 shall provide the capability for the SCF to transfer to the AITTL CI via ftp.	EXT02.03				X
			EXT08.02				X
EOSD1750	ECS elements shall receive data including the following types of supporting information from the ECS science community (TLs, TMs, PIs, and Co-Is): a. Algorithms b. Software fixes d. Integration support requests	IR-1: Applies only to TRMM and AM-1 algorithms and algorithm I&T.	EXT02.03				X
			EXT08.02				X
EOSD1760	The ECS elements shall send the following types of data at a minimum to the ECS science community (TLs, TMs, PIs, and Co-Is): a. Software Problem Reports	IR-1: Applies only to TRMM and AM-1 algorithms.	EXT02.01				X
			EXT08.01				X
PGS-0610	The PGS shall accept from the SCFs new or modified calibration coefficients to be validated in the test environment. Calibration coefficients shall contain the following information at a minimum: a. Identification of coefficient data set b. Calibration coefficients values c. Author and version number d. Identification of related processing algorithm e. Start and stop date/time of applicability f. Date and time g. SCF identification h. Reasons for update	IR-1: Applies to accepting information only, not using it. The Dataserver is incorporated in Release A. Dataserver is not available at IR-1.	EXT02.01				X
			EXT08.01				X
PGS-0620	The PGS shall have the capability to validate received calibration coefficients for completeness and correct format.	IR-1 TRMM and SCF	EXT02.01				X
			EXT08.01				X
PGS-0900	The PGS shall send test products to the SCF for analysis. These shall contain the	IR-1: This requirement is	EXT02.01				X

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Verification Matrix							
Paragraph ID	Requirement Text	Clarification	Test Case ID	Test Method I A D T			
	results of algorithm testing and shall contain the following information at a minimum: a. Algorithm identification b. Test time(s) c. Processor identification d. Test results	supported as follows: IR-1 shall provide the capability to transfer files to the SCF via ftp.	EXT08.01				X
PGS-1030	The PGS shall provide a toolkit to the SCF containing versions of the routines specified in requirements PGS-0970 to PGS-1020.	IR-1: External interface requirement SCF-0060.	EXT02.03 EXT08.02	X X			
SCF-0040	The ECS shall have the capability to send to the SCFs the Data Production Software Specification Requirements describing what is required for completing the Initial Data Production Software Specifications.		EXT02.01 EXT08.01				X X
SCF-0050	The ECS shall have the capability to accept from the SCF a set of Initial Data Production Software Specifications that provides the software design description and operations concepts of the data production software to be delivered and estimates storage and processing resources required for the data production software to operate successfully in the ECS operational environment. These specifications are described in the Data Production Software Specification Requirements.	IR-1: This requirement is supported as follows: IR-1 shall provide the capability for the SCF to transfer files to the AITTL CI via ftp.	EXT02.01 EXT08.01				X X
SCF-0060	The ECS shall have the capability to provide to the SCF the Toolkit Delivery and Update Package. This package includes the PGS toolkit which supplies tools for the emulation of the ECS production environment and contains a ECS-standardized software routines to aid in science data production software development.		EXT02.01 EXT08.01				X X
SCF-0070	The ECS shall have the capability to provide Integration and Test Specifications to the scientist at the SCF. These specifications are defined by the Data Processing Focus Team. These specifications are implemented in the Data Production Software Delivery Package and support smooth integration of the data production software into the ECS production environment.		EXT02.01 EXT08.01				X X
SCF-0080	The ECS shall have the capability to provide an Interactive Session Dialog with	IR-1: This requirement is	EXT02.01				X

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Verification Matrix								
Paragraph ID	Requirement Text	Clarification	Test Case ID	Test Method I A D T				
	the SCF. This dialog, to aid integration and test of the data production software into the ECS production environment, shall support, at a minimum, general communications between the ECS and the SCF that include logins, mail messages, status reports, test coordination, test execution scripts, and solutions to minor problems.	supported as follows: IR-1 shall provide the capability for the SCF to access ECS remotely via a virtual terminal.	EXT08.01					X
SCF-0100	The ECS shall have the capability to forward Test Products to the SCF. These products generated by the science software at the ECS will require the review of the scientist at the SCF who submitted the software.	IR-1: This requirement is supported as follows: IR-1 shall provide the capability of ECS to transfer files to the SCF via ftp.	EXT02.01 EXT08.01					X X
SCF-0110	The ECS shall have the capability to receive Test Product Reviews from the SCF. These reviews shall include the comments and recommendations of the scientist at the SCF who has reviewed the Test Products.	IR-1: This requirement is supported as follows: IR-1 shall provide the capability for the SCF to transfer files to the AITTL CI via ftp.	EXT02.01 EXT08.01					X X
SCF-0120	The ECS shall have the capability to receive Data Production Software Updates from the SCF. These Data Production Software Updates include modifications to any data production software already submitted to the ECS by the SCF. The Data Production Software Updates may include some or all the items required in the Data Production Software Delivery Package.	IR-1: This requirement is supported as follows: IR-1 shall provide the capability for the SCF to transfer files to the AITTL CI via ftp.	EXT02.01 EXT08.01					X X
SCF-0330	The ECS shall have the capability to receive a Calibration Coefficient Update Package from the SCF. This package shall include a calibration coefficient file and other documentation needed to implement the updated coefficients.	IR-1: This requirement is supported as follows: IR-1 shall provide the capability for the SCF to transfer files to the AITTL CI via ftp.	EXT02.01 EXT08.01					X X
SDPS0020	The SDPS shall receive EOS science, and engineering data from the SDPF, and non-EOS ancillary data (as listed in Appendix C) from ADCs.	IR-1: Applies only to ingest and temporary storage for testing purposes only; data from NOAA will be via	EXT02.01 EXT08.01					X X X

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Paragraph ID	Requirement Text	Clarification	Test Case ID	Test Method I A D T			
		ftp of science and engineering data from SDPF, and ancillary data from ADCs (NOAA). APPLIES ONLY TO GSFC DACC AND LaRC DAAC					X
SDPS0080	The SDPS shall archive, quality check all science data received from the EPDSs and ancillary data received from the ADCs.	IR-1: This requirement is supported as follows: IR-1 shall verify that data received from TRMM and NESDIS during interface testing was transmitted completely and without transmission errors. IR-1 does not archive this data.	EXT02.01 EXT08.01				X X X
SDPS0090	The SDPS shall interface with the PIs and the other science users to support the development and testing of data product algorithms and QA of produced data products.	IR-1: Interface accomplished only through file transfer (e.g., FTP). Accepts QA data as part of its output. Interface clarification assumes e-mail provided by DAAC.	EXT02.01 EXT08.01				X X